

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Cancelled) Process for analysing a liquid sample which comprises one or more analytes and includes the following steps: aspirating the sample into a metering apparatus (1), metering the sample onto the measurement surface of the optical element (4) of an ATR apparatus by means of the metering apparatus, measuring the ATR-IR spectrum, analysing the spectrum with a calibration procedure for concentration determination of the analytes to be detected, characterized in that the sample is dried on the measurement surface before the ATR-IR spectrum is measured.
2. (Cancelled) Process according to Claim 1, characterized in that the sample is selected from the group of: interstitial fluid, blood, serum, plasma, urine, saliva, sweat or lacrimal fluid.
3. (Cancelled) Process according to Claim 1 or 2, characterized in that the analyte is selected from the group of: glucose, high-density lipoproteins (HDL), low-density lipoproteins (LDL), cholesterol, triglycerides, albumin, total protein alone or in any combination, urea, uric acid, haemoglobin and/or creatinine.
4. (Cancelled) Process according to Claims 1 to 3, characterized in that the NIR spectrum is measured in the wavenumber range of 800 to 14 000 cm^{-1} , preferably of 900 to 1200 cm^{-1} .
5. (Cancelled) Process according to Claims 1 to 4, characterized in that sample volumes of 0.2 to 1000 nl, preferably 0.5 to 500 nl, are used and analysed.

6. (Cancelled) Process according to Claims 1 to 5, wherein the sample is applied to the measurement surface of the ATR apparatus as a drop sequence in several steps, the drop sequence consisting in each case of one or more drops and the sample being dried between the drop sequences.
7. (Cancelled) Process according to Claims 1 to 6, characterized in that the sample is dried by supplying heat, by passing over drying gas or evacuating the sample chamber.
8. (Cancelled) Process according to Claims 1 to 7, characterized in that the measurement surface is bounded by a frame on the optical element (4) of the ATR apparatus.
9. (Cancelled) Process according to Claims 1 to 8, wherein, in addition to the IR spectrum, the morphology of the dried sample is determined, especially by imaging the sample or interferometry.
10. (Cancelled) Process according to Claim 9, characterized in that the morphology is determined by measuring the distance from the surface of the dried film to a reference point by means of a focused laser beam.
11. (Cancelled) Apparatus for performing the process according to Claims I to 10 comprising at least a combination of a metering apparatus (1) with an ATR spectrometer apparatus, optionally with dryer unit (13), characterized in that the metering apparatus (1) meters drop volumes in the range from 0.2 to 1000 nl, preferably 0.5 to 500 nl.
12. (Cancelled) Apparatus according to Claim 11, characterized in that the metering apparatus (1) is a piezo-driven dropper or a syringe-driven dropper.
13. (Cancelled) Apparatus according to Claim 11 or 12, characterized in that the apparatus is mounted in an evacuable casing (10) which is equipped with means of evacuation.

14. (Cancelled) Apparatus according to Claims 11 to 13, characterized in that the apparatus is additionally equipped with a blower (13) and feed line (14) connected thereto, and one or more nozzles (15) which are connected to the feed line and are directed towards the measurement surface of the optical element (4) of the ATR apparatus.

15. (Cancelled) Apparatus according to Claims 11 to 14, characterized in that the optical element (4) of the ATR measurement apparatus is a prism, a planar waveguide or a plate waveguide, and is in each case manufactured from diamond, silicon, zinc selenide or germanium.

16. (Cancelled) Apparatus according to Claims 11 to 14, characterized in that the optical element (4) of the ATR measurement apparatus is an optical fibre manufactured from chalcogenides or silver halides.

17. (Cancelled) Apparatus according to Claims 11 to 16, characterized in that that the optical element (4) of the ATR measurement apparatus is covered with a removable disposable film.

18. (Cancelled) Apparatus according to Claim 17, characterized in that the disposable film consists of polyethylene.

19. (Cancelled) Apparatus according to Claims 11 to 18, characterized in that the optical element (4) of the ATR measurement apparatus is provided with a frame to bound the measurement surface.

20. (Cancelled) Apparatus according to Claim 18, characterized in that the frame consists of a ring of hydrophobic material pressed onto the disposable film.

21. (Cancelled) Apparatus according to Claims 11 to 20, characterized in that the apparatus is additionally equipped with a digital camera (17) to record an image of the sample.

22. (Cancelled) Apparatus according to Claims 11 to 21, characterized in that the apparatus is additionally equipped with a layer thickness measurement apparatus (20; 22), especially based on laser backscattering.

23. (Cancelled) Apparatus according to Claims 11 to 22, characterized in that the metering apparatus (1) and the optical element (4) of the ATR measurement apparatus are combined on a common substrate.

24. (Cancelled) Apparatus according to Claims 11 to 23, characterized in that the metering apparatus (1), the optical element (4) and the readout element of the ATR measurement apparatus are combined on a common substrate.

25. (New) A method for analyzing a liquid sample comprising at least one analyte, the method comprising the acts of:

aspirating the sample into a metering apparatus;

metering the sample onto the measurement surface of an optical element of an ATR apparatus via the metering apparatus;

measuring the ATR-IR spectrum; and

analyzing the ATR-IR spectrum with a calibration procedure for concentration determination of the analytes to be detected,

wherein the sample is dried on the measurement surface before the ATR-IR spectrum is measured.

26. (New) The method of claim 25, wherein the sample is interstitial fluid, blood, serum, plasma, urine, saliva, sweat or lacrimal fluid.

27. (New) The method of claim 25, wherein the analyte is glucose, high-density lipoproteins (HDL), low-density lipoproteins (LDL), cholesterol, triglycerides, albumin, total protein, urea, uric acid, hemoglobin, creatinine or combinations thereof.

28. (New) The method of claim 25, wherein the NIR spectrum is measured in the wavenumber range of 800 to 14,000 cm^{-1} .

29. (New) The method of claim 25, wherein the sample has a volume of 0.2 to 1000 nl.

30. (New) The method of claim 25, wherein the sample is applied to the measurement surface of the ATR apparatus as a drop sequence in several acts, each of the drop sequences including at least one drop and the sample being dried between the drop sequences.

31. (New) The method of claim 25, wherein the measurement surface is bounded by a frame on the optical element of the ATR apparatus.

32. (New) The method of claim 25, wherein the metering apparatus is a piezo-driven dropper or a syringe-driven dropper.

33. (New) The method of claim 25, wherein the apparatus is mounted in an evacuable casing, the casing being equipped with an evacuation mechanism.

34. (New) The method of claim 25, wherein the apparatus further includes a blower and a feed line connected thereto, and at least one nozzle that is connected to the feed line and is directed towards the measurement surface of the optical element of the ATR apparatus.

35. (New) The method of claim 25, wherein the optical element of the ATR measurement apparatus is a prism, a planar waveguide or a plate waveguide, the optical element comprising diamond, silicon, zinc selenide or germanium.

36. (New) The method of claim 25, wherein the optical element of the ATR measurement apparatus is an optical fiber manufactured from chalcogenides or silver halides.

37. (New) The method of claim 25, wherein the optical element of the ATR measurement apparatus is covered with a removable disposable film.

38. (New) The method of claim 37, wherein the disposable film consists of polyethylene.

39. (New) The method of claim 25, wherein the optical element of the ATR measurement apparatus is provided with a frame to bound the measurement surface.

40. (New) The method of claim 39, wherein the frame consists of a ring of hydrophobic material pressed onto the disposable film.

41. (New) The method of claim 25, wherein the apparatus further includes a digital camera to record an image of the sample.

42. (New) The method of claim 25, wherein the metering apparatus and the optical element of the ATR measurement apparatus are combined on a common substrate.

43. (New) The method of claim 25, wherein the metering apparatus, the optical element and the readout element of the ATR measurement apparatus are combined on a common substrate.